Quiz yourself: The Java Platform Module System and the ServiceLoader class

Yes, the JPMS ServiceLoader class loads services. How’s your knowledge of the details?

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Which statement about the Java Platform Module System (JPMS) is true? Choose one.

A. The `ServiceLoader.load(Class service)` returns an `Iterator` instance.

B. The `ServiceLoader.load(Class service)` returns a `ServiceLoader` instance.

C. JPMS introduces a mechanism to load service implementations from the `META-INF/service` directory.

D. Changing the implementation of a service requires recompiling the module definition of the client module.
E. A service provider class must implement an interface that defines the API of the service.

The answer is E.

F. A service provider class must have a public zero-argument constructor.

The answer is F.

Answer. Option A suggests that the return type of the load method is an Iterator. In fact, all three load(...) overloaded methods return parameterized ServiceLoader instances. The ServiceLoader class does implement Iterable (and therefore it can be used directly in the enhanced for construction); however, the class does not implement the Iterator interface. From this you can determine that option A is incorrect and that option B is correct.

Option C suggests a new mechanism that involves listing class names for service providers in the META-INF/service directories of JAR files. In fact, such a mechanism existed prior to Java 9, and JAR files containing such services would be placed on classpath. However, Java 9 introduced a new mechanism such that a service loader can look up module definitions on the module path and collect service implementations. Since the mechanism alluded to is neither new nor specific to JPMS, option C is incorrect.

Option D is incorrect as well. A powerful benefit of the service loading mechanism in JPMS is that no recompilation is required. Simply adjusting the module path or the modules placed on that path as the application starts up is sufficient to change the set of service implementations available.

Option E suggests that a service provider must implement an interface. This is not accurate; the service can be described using an interface, but a class, either concrete or abstract, is fine too. (Note that there are some constraints and more options not mentioned here.) From this you know that option E is incorrect.

Option F suggests that the implementation class must have a zero-argument constructor. This is certainly common, but it’s not mandatory. Instead the service implementation class can define a public static zero-argument method provider that is used as a factory for the service implementation object. If a provider() method does not exist, the service loader will fall back to building the service object using the zero-argument constructor. From this you know that option F is incorrect.

Conclusion. The correct answer is option B.

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